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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/624,594      | 07/23/2003  | Katsushi Sakai       | 826.1883            | 7621             |

21171 7590 04/11/2005

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| EXAMINER |
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MARC, MCDIEUNEL

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| ART UNIT | PAPER NUMBER |
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3661

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/624,594

Applicant(s)

SAKAI, KATSUSHI

Examiner

McDieunel Marc

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-12 are presented for examination.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 2-4, 6-8 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by **Han** (U.S. Pat. No. **5,534,762**).

As per claims 2 and 10, Han teaches a power supply control device for a mobile robot system with a drive mechanism and a battery (see figs 4 and 7), comprising: a charging/discharging circuit with a current path that branches current from a power supply adaptor to the battery and to the drive mechanism (see abstract, figs. 4 and 7), supplying current to the drive mechanism from the power supply adaptor while charging the battery with current supplied from the power supply adaptor (see figs. 4 and 7); and a control circuit instructing the charging/discharging circuit to charge the battery, and permitting an operation of the drive mechanism during charge (see fig. 7 and col. 6, lines 39-42).

As per claims 3 and 11, Han teaches a power supply control device for a mobile robot system with a battery and a control logic unit (see figs. 4 and 7 as noted above), comprising: a charging/discharging circuit with a current path that branches current from a power supply adaptor to the battery and to the logic unit, charging the battery with current supplied from the power supply adaptor when the logic unit is not operating (see abstract, fig. 7 and col. 6, lines 39-42 as noted above), and supplying current to the

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logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating (see fig. 7); and a control circuit instructing the charging/discharging circuit to charge the battery (see figs. 4 and 7 as noted above).

As per claims 4 and 12, Han teaches a power supply control device for a mobile robot system with a drive mechanism and a battery (see figs. 4 and 7), comprising: a computer executing a program controlling a series of robot system operations (see col. 6, lines 39-42 as noted above); and a switch detecting whether the computer is driven has been considered moving, and when the computer is not driven (see fig. 8 [A-C]), note that not driving being considered as top, automatically cutting off power supply to the drive mechanism from the battery (inherently, stop implies cutting off of power).

As per claim 6, Han teaches a power supply control method for a mobile robot system with a drive mechanism and a battery (see figs. 4 and 7), comprising supplying current to the drive mechanism from a power supply adaptor while charging the battery with current supplied from the power supply adaptor by using a current path that branches current from the power supply adaptor to the battery and to the drive mechanism (see abstract figs. 4, 7 and 8[A-C]).

As per claim 7, Han teaches a power supply control method for a mobile robot system with a battery and a control logic unit (see figs. 4 and 7), comprising charging the battery with current supplied from a power supply adaptor by using a current path that branches current from the power supply adaptor to the battery and to the logic unit when the logic unit is not operating (see figs. 4, 7 and abstract), not operating logic being taken as stationary while charging, and supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor by using the current path (see abstract, figs. 4 and 7) when the logic unit is operating has been considered as moving.

As per claim 8, Han teaches a power supply control method for a mobile robot system with a drive mechanism and a battery (figs. 4 and 7), comprising: detecting whether a computer that executes a program controlling a series of robot system operations is driven (see abstract, figs. 4 and 7 as noted above); automatically cutting off power supply to the drive mechanism from the battery when the computer is not driven (see abstract and figs. 4, 7 and 8[A-C]), note that computer not driven being taken as top.

### ***Claim Rejections - 35 USC § 103***

4. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Han** in view of **Ueno et al.** (U.S. Pat. No. 006480761B2) and **Song et al.** (U.S. PG. Pub. No. 20030028993A1).

As per claims 1 and 9, **Han** teaches substantially a charge induction system of a robot having a power supply control device (see fig. 7, element 110) for a mobile robot system with a travel mechanism and a battery (see fig. 4, elements 1 and 10), comprising: a charging/discharging circuit electrically controlling charge and discharge of the battery (see fig. 4, elements 110, 40 and 10); a control circuit checking remaining power in the battery (see fig. 4, element 30), when the control circuit determines that the remaining power is insufficient, prohibiting an operation of the travel mechanism (see abstract), and instructing the charging/discharging circuit to charge the battery (see abstract), and when the control circuit determines that the remaining power is sufficient, permitting the operation of the travel mechanism (see figs. 8 [A-C]); and a computer executing a program controlling a series of robot system operations (see fig. 7 and col. 6, lines 39-42). **Han** does not specifically teach the limitations of issuing an alarm indicating an insufficient remaining power and on receipt of the alarm from the control circuit, issuing a charge request message to a user.

However, Ueno *et al.* teaches a battery-driven legged robot including of issuing an alarm indicating an insufficient remaining power and on receipt of the alarm from the control circuit (see col. 4, lines 12-19).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the robot type of Han with the robot type of Ueno *et al.*, because this modification would have enhanced Han' s robot in order to indicate that the battery has decreased below a predetermined value, thereby improving the efficiency and the reliability of the power supply control for mobile robot.

Although, Han and Ueno *et al.* teach essential features of the invention substantially as claimed, but they do not specifically teach issuing a charge request message to a user.

However, Song *et al.* teaches issuing a charge request message to a user [section 0053].

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the robot types of Han and Ueno *et al.* with the robot type of Song *et al.*, because this modification would have enhanced Han' s and Ueno' s *et al.* robot in order to process a series of jobs that allow a menu selected by the user to be carried out by the robot cleaner, thereby improving the efficiency and the reliability of the power supply control for mobile robot.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Han** in view of **Song *et al.***.

As per claim 5, Han also teaches a power supply control method for a mobile robot system with a travel mechanism and a battery (see figs. 4 and 7 as noted above), comprising: checking remaining power in the battery prohibiting an operation of the

travel mechanism (see fig. 7 as noted above); when the checking determines that the remaining power is insufficient (see figs. 4 and 7 as noted above), and charging the battery when the user turns a power supply adaptor on; and permitting the operation of the travel mechanism when the checking determines that the remaining power is sufficient (see figs 4 and 7 as noted above). Han does not specifically teach issuing a charge request message to a user.

However, Song *et al.* teaches issuing a charge request message to a user [section 0053].

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the robot type of Han with the robot type of Song *et al.*, because this modification would have enhanced Han' s robot in order to process a series of jobs that allow a menu selected by the user to be carried out by the robot cleaner, thereby improving the efficiency and the reliability of the power supply control for mobile robot.

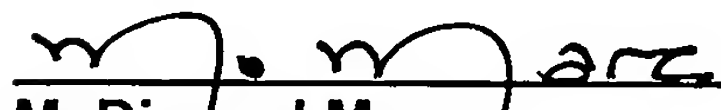
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to McDieunel Marc whose telephone number is (703) 305-4478. The examiner can normally be reached on 6:30-5:00 Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



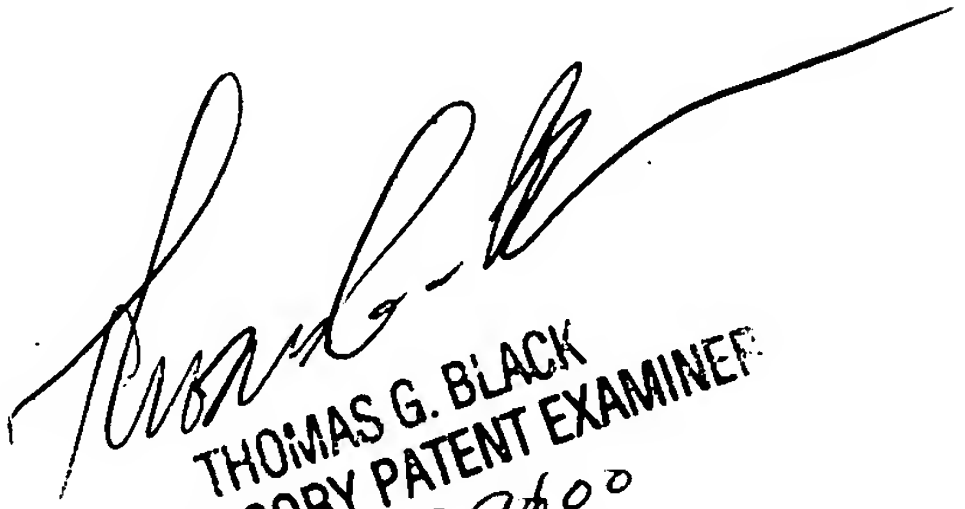
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
McDienel Marc

Tuesday, March 29, 2005

MM/

  
THOMAS G. BLACK  
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